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JUNE 27, 2002
Date of
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C4007(C)
Y2-0187-UNI

PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Customer Number: 000201
Attorney Docket No.: C4007(C)
Applicant: Hage et al.
Serial No.: 09/650,134
Filed: August 29, 2000
FOR: COMPOSITION AND METHOD FOR BLEACHING A SUBSTRATE
UNUS No.: Y2-0187-UNI

Group: 1751
Examiner: Gregory R. Delcotto

Edgewater, New Jersey 07020
June 27, 2002

RESPONSE

Commissioner For Patents
Washington, D.C. 20231

Sir,

The following comments are in response to the Office Action dated June 7, 2002. These comments are intended to advance the case to issue without delay.

Claims 1, 2, 4-14, 16, 18-20 and 22-24 were rejected under 35 U.S.C. § 103(a) as unpatentable over WO 97/38074, WO 95/34628 or WO 97/48787. Applicants traverse this rejection.

WO '628 under the header "The peroxy bleaching compound" employs 3.5 pages of text to describe all possible variants of such peroxy bleaching compounds. Held to the very end is "As an alternative to the above described peroxide generating systems, molecular oxygen may be used as the oxidant." See page 10 (line 36) bridging to page 11 (line 1).

Those skilled in laundry bleaching art would not interpret "molecular oxygen" as atmospheric oxygen or even air (i.e. 21% oxygen). Here is the logic that any skilled chemist would apply to this situation. WO '628 clearly requires a peroxy compound in conjunction with an oxidation catalyst. These compounds are quite active materials. They include hydrogen peroxide itself, inorganic and organic peroxides and peroxy acids. After a litany of all these relatively expensive reactive peroxides bridging pages 7-10, a caboose refers to "molecular oxygen". Were the latter to simply be interpreted as air, why would the reference deem it even necessary to mention relatively expensive, active peroxides? Indeed, this reference should simply have said an oxidation catalyst is sufficient (with air normally being present in a laundry process). The inevitable answer must be that WO '628 in no way was advocating air as a suitable alternative to peroxy compounds.

So what was meant by "molecular oxygen"? Possibly the answer is found in Example 3. Therein is reported an oxygen saturated phosphate buffer solution containing Methanol Oxidase (MOX) and ethanol for generating hydrogen peroxide. In this peroxide generating system the MOX enzyme is believed to first convert ethanol via air to acetaldehyde. "Molecular oxygen" is the oxygen source but there is requirement that this must include an enzyme converted aldehyde.

In his Office Action response, the Examiner stated that he "still sees no distinction between the molecular oxygen and atmospheric oxygen as recited by the instant claims. The oxygen in the air is the same as molecular oxygen."

Besides the rationale already provided above, the Examiner may consider the following. The term "molecular oxygen" is a phrase of unusual construction. More likely than not, the phrase was coined not to include air per se. Atmospheric oxygen would tend to be excluded. Systems are the key to understanding the phrase. The cited art in discussing "molecular oxygen" actually means "molecular oxygen systems" which generate peroxides.

Another objection of the Examiner was stated as: "The fact that the catalyst bleaches when exposed to air is a property which is inherent to the particular type of catalyst chosen. Regardless of whether oxygen is from the air or called molecular oxygen which may be sourced from the air or another source, the oxygen is the same."

Applicants' independent claims recite a "complex catalysing bleaching of a substrate by atmospheric oxygen". This phrase includes only those catalysts which actually do achieve bleaching simply through atmospheric oxygen. Yet the inherent potential activity of the complex was not previously known and not previously inherently practiced. While some complexes of the present invention may have been described in the literature, they either were not placed in a substrate bleaching situation or when in such situation were in contact with more energetic peroxides than atmospheric oxygen. Those synthetic peroxides would swamp any bleaching from atmospheric oxygen. Thus, any inherent action by atmospheric oxygen was neither appreciated nor inherent in the art.

The Examiner has further discounted applicants' arguments. He states that "there is no disclosure in either '628 or '787 of the use or necessity of an aldehyde." Thus he attempts to refute the argument that aldehydes which define the "molecular oxygen systems" of WO '074 are the same as those in '628 or '787 merely mentioning "molecular oxygen".

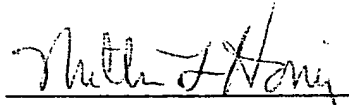
Applicants have provided a further rationale for the "molecular oxygen" language in '628 (and similarly for '787). These documents describe aldehyde generating enzyme systems. More specifically, Example 3 uses oxygen in an enzyme catalyzed ethanol mediated oxidation system. This is the "molecular oxygen" of the references.

Further, the Examiner had stated: "Additionally, even though '074 teaches the use of aldehydes, the instant claims do not exclude the use of aldehydes but only state that the complex catalyzes the bleaching of a substrate by atmospheric oxygen without the use of aldehydes. Thus, since '074 teaches the same bleach catalysts as recited by the instant claims, the Examiner asserts that these catalysts would have the same bleaching properties without the use of aldehydes as recited by the instant claims, even though '074 may recognize the fact that aldehydes enhance such a bleaching effect."

Applicants' claims do not exclude the presence of small amounts of aldehydes. These small amounts are ubiquitously found in perfumes and some preservatives. Yet amounts of these types of aldehydes are insignificant for bleach promoting purposes. Applicants' claims do exclude those aldehydes in type and amount that would catalyze atmospheric oxygen to bleach the substrate. If any reactive aldehydes were present, their lower activation energy would cause their combination with the oxygen to result in bleach catalysis. Non-aldehyde reactive oxygen could not successfully compete. The present claims literally do exclude reactive aldehydes at levels that would compete with simple atmospheric oxygen bleaching.

Applicants thank the Examiner for the indication of potentially allowable subject matter with respect to claims 3, 15 and 21. However, the Examiner is requested to reconsider the rejection of the other claims which applicants strongly believe should also be allowable.

Respectfully submitted,



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